a molten salt electrolysis process for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in molten salt so as to provide a decontaminated electrically conductive waste; and

a filtering process for filtering the molten salt used in the molten salt electrolysis process to extract the nuclear fuel materials removed from the surface of the waste and accumulated in the molten salt from the molten salt;

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wherein the molten salt filtered in the filtering process is reused in the molten salt electrolysis process.

17. (Once Amended) An apparatus for treating an electrically conductive waste contaminated with nuclear fuel materials from a nuclear fuel handling facility, which comprises:

a molten salt electrolysis unit for removing the nuclear fuel materials adhering to a surface of the waste by immersing the waste in a molten salt to dissolve a surface layer of the waste electrochemically in the molten salt so as to provide a decontaminated electrically conductive waste;

a filtering unit for filtering the molten salt used by the molten salt electrolysis unit to extract the nuclear fuel materials removed from the surface of the waste and accumulated in the molten salt from the molten salt; and

a molten salt return line for returning the molten salt filtered by the filtering unit to the molten salt electrolysis unit.